



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/820,048

04/08/2004

Hiroshi Kobayashi

251586US6

7332

22850 7590 02/09/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

SITTA, GRANT

ART UNIT

PAPER NUMBER

2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

02/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/820,048

Applicant(s)

KOBAYASHI, HIROSHI

Examiner

Grant D. Sitta

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Title

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Method and apparatus for driving active matrix display using pixel precharging.**

Drawings

4. Figures 5A, 5B and 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Art Unit: 2609

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Art, Fig. 7) in view of Lebrun et al. (US 6,359,608), hereinafter, Lebrun.

8. Regarding claim 1, AAPA (Applicant Admitted Prior Art, Fig. 7) teaches:

A panel including a plurality of gate lines extending along rows (13), a plurality of signal lines extending along columns (12), a plurality of pixels arranged in a matrix at intersecting points at which said gate lines and said signal lines intersect with each other (11); and a plurality of image lines separated into a plurality of systems for supplying an image signal (Fig. 7, [0002]);

A vertical driving circuit (16) connected to said gate lines for successively selecting the rows of said pixels ([0002], Fig 7, (16));

A horizontal driving circuit (17) operable in response to a clock signal (18) for successively generating sampling pulses ([0002]).

AAPA (Applicant Admitted Prior Art, Fig. 7) fails to teach:

A plurality of sampling switches disposed for connecting said signal lines to said image lines; and

A horizontal driving circuit applying double sampling pulses including a first pulse and a second pulse to each of said sampling switches such that the corresponding signal lines is precharged with the image signal in response to the first pulse and then the image signal is sampled to the signal lines in response to the second pulse;

However, Lebrun teaches:

A plurality of sampling switches (13) disposed for connecting said signal lines to said image lines (Fig 5 (13); col. 5, lines 19-40).

A horizontal driving circuit (Fig. 3, (8); col. 2, lines 5-20) operable in response to a clock signal for successively generating sampling pulses to

successively drive said sampling switches so that the image signal is successively written into the pixels (6) of the selected row (Fig. 3, (9); col. 2, lines 5-20); and

A horizontal driving circuit (Fig. 3, 8, col. 2, lines 5-20) applying sampling pulses to the switches (col. 3, lines 19-30, col. 5, lines 45-52) such that first pulses precharges and then the image is sampled and then the image signal is sampled in response to the second signal (Figs. 6 and 8; col. 5, lines 55-65).

Lebrun teaches in Figs. 5, 7 and 8 (col. 5 lines 20-31, lines 40-55, lines 55-65 "such that one of the transistors precharges the odd lines while the other precharges the even lines.") image lines being connected in such a way where the second pulse of the double sampling is applied to the preceding one of the switches (col. 5, lines 29-40) while switches are in a temporally overlapping relationship with different ones of said image lines connect to the preceding and succeeding sample switch (Fig 5 and 6, col. 5, lines 19-30, lines 32-37) .

Lebrun further teaches image lines being connected such that, where the second pulse of double sampling pulses (Fig 6) applied to a preceding one of said sampling switches and the first pulse of the double sampling pulses applied to a succeeding one of said sampling switches are in a temporally overlapping relationship with each other (Fig 5), different ones of said image lines are connected to the preceding sampling switch (Fig 5, (13)) and the succeeding sampling switch thereby to prevent interference of the image signal between the two sampling switches (Figs 5 and 6; cols. 5, lines 19-40 and col. 5, lines 50-55).

It would have been obvious to one of ordinary skill in the art to have used the layout of driving circuits as taught by AAPA (Applicant Admitted Prior Art, Fig. 7) with the double sampling pulse, produced by the switches, as taught by Lebrun. As Lebrun method allows the precharging of pixels without strong capacitive coupling (col. 5, lines 50-55) and further allows the lines to be grouped and precharged with the first pulse and then sampled sequentially according to grouping (col. 6, lines 15-25).

9. As to claim 2, Lebrun teaches:

A horizontal driver circuit (Fig. 3 (8)) includes a shift register (col. 2, lines 5-20) for receiving a clock signal (col. 3, lines 19-30) having a predetermined period and a start pulse having a pulse width equal to twice the predetermined period (Fig 6, the TR width is twice the width of the period for TS.) and performing period and performing a shift operation of the start pulse in synchronism with the clock signal to successively output shift pulses from the individual shift stages (col. 3, lines 19-30) thereof and an extraction switch set for extracting a clock signal having a predetermined period in response to the shift pulses successively outputted from said shift register to successively produce the double sampling pulse (Fig 6. Fig 7, col. 5, lines 40-55, col. 3, lines 19-30).

10. As to claim 3, Lebrun teaches in one embodiment (Figs. 5, 7 and 9) wherein the image line (Fig. 7, (14)) of a first system is connected to those of sampling switches (Fig 5. and Fig 7, (13)), which belong to a first group (Fig. 7). With each being disposed of every third place (Fig. 5) and the image lines of a second system is connected to those of said sampling switches (Fig. 5, DW1,

DW2, etc.) displaced by a one switch difference from the sampling switches of the remaining third group (Fig. 5 DB1, DB2, etc.) thereby to prevent interference of the image signal between the preceding sampling switch and the succeeding sampling switch (col. 5, lines 45-55 "compensate for the strong capacitive coupling...").

11. In one Lebrun embodiment, Lebrun teaches grouping with lines of five (Fig. 9, lines 15-35, lines L1-L5 are first precharged than sampled sequentially). The use of the three transistors as in Fig 7 ((16), (17), and (18)) makes it possible to compensate for strong capacitive coupling (col. 5, lines 45-55) thereby, preventing interference. The Examiner notes the difference between groups of three as taught by Applicant and grouping in lines of five as taught by Lebrun. However, Applicant does not show that any improved functionality or benefit between groups of three or groups of five. Thus, the different groupings by Applicant are merely design choices and not inventive in regards to one another.

12. Claim 4 is rejected for the reasons stated in claims 1-3.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (6,924,784) Yeo teaches a switching means to pre-charge data lines in response to a control signal; (6,282,136) Sakurai teaches pre-charging the data lines at the address selected in a cycle, with the addresses arranged sequentially in the direction of the data lines; (2002/0011984) Shirochi

Art Unit: 2609

teaches alternating-current driving such that the signals to be written to the R color and B color liquid crystal display are opposite in polarity to the signal written to the G; (6,266,039); (6,307,681); (6,563,743).

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Grant D. Sitta whose telephone number is 571-270-1542. The examiner can normally be reached M-Th 7:30-5:00.

If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-270-1550. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to USPTO Customer Service Representative or access to the automated information system whose telephone number is 1-800-786-9119 or 571-272-1000.


AMARE MENGISTU
SUPERVISORY PATENT EXAMINER

Grant D. Sitta

January 22, 2007